

A NEW SPECIES OF THE MINUTE PREDACEOUS MIDGE GENUS  
*NANNOHELEA* FROM SRI LANKA (DIPTERA: CERATOPOGONIDAE)

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*Abstract.* — *Nannohelea tamil*, a new species of minute predaceous midge from Sri Lanka is described and illustrated. A key to the extant species of *Nannohelea* is provided.

*Key Words:* Diptera, Ceratopogonidae, *Nannohelea*, predaceous midges, new species, Sri Lanka, Oriental

Grogan and Wirth (1980) proposed the minute predaceous midge genus *Nannohelea* composed of 3 species: *bourioni* (Clastrier) (1961), as type-species, from France and Algeria (Palearctic); *fuscipennis* (Tokunaga) (1964), from New Guinea and Malaysia (Oriental and Australasian); and *clastrieri* Grogan and Wirth (1980), from Columbia (Neotropical). Recently, Szadziewski (1988) described 2 new species from Eocene Baltic amber (ca. 40 million years old), suggested that the genus is of Laurasian origin, and that it probably migrated to South America during the Tertiary.

We recently obtained 4 specimens of *Nannohelea* collected by Ginter Ekis in Sri Lanka during 1973 that represent a new species apparently most closely related to *N. fuscipennis*. In addition to describing this new species, we also present a key to the extant species of *Nannohelea*.

For an explanation of general ceratopogonid terminology, see Downes and Wirth (1981); for special terms dealing with predaceous midges in the tribe Ceratopogonini, see Wirth and Grogan (1988). The types of this new species will be deposited in the National Museum of Natural History, Washington, D.C. (USNM).

KEY TO THE EXTANT SPECIES OF  
*NANNOHELEA*

1. Females ..... 2  
– Males ..... 4
2. Anal lobe of wing poorly developed, with fringe of 6–10 short capitate setae; small species, wing length 0.68–0.74 mm; Palearctic Region .....  
..... *bourioni* (Clastrier)  
Anal lobe of wing well developed, with fringe of normal slender setae; very small species, wing length 0.47–0.49 mm; Oriental and Australasian Regions ..... 3
3. Eyes contiguous; wing with vein R2+3 much shorter than r-m crossvein, radial cell narrow, cubital fork obsolete on distal ¾ .....  
..... *fuscipennis* (Tokunaga)  
– Eyes narrowly separated; wing with vein R2+3 as long or longer than r-m crossvein, radial cell rounded, cubital fork obsolete only at extreme tip at wing margin ..... *tamil*, new species
4. Flagellum with 8 flagellomeres; small species, wing length 0.50–0.55 mm ..... *bourioni* (Clastrier)  
Flagellum with 7 flagellomeres; very small species, wing length 0.37–0.43 mm ..... 5
5. Eyes contiguous; flagellum with only distal 2 flagellomeres elongated, antennal ratio 0.82–0.85 ..... *fuscipennis* (Tokunaga)  
– Eyes separated; flagellum with distal 3 flagellomeres elongated, antennal ratio 1.38 or greater ..... 6
6. Aedeagus with long slender basal arms; flagellum with last flagellomere bearing a single apical trichoid sensilla, antennal ratio 1.38–1.39 .....  
..... *tamil*, new species

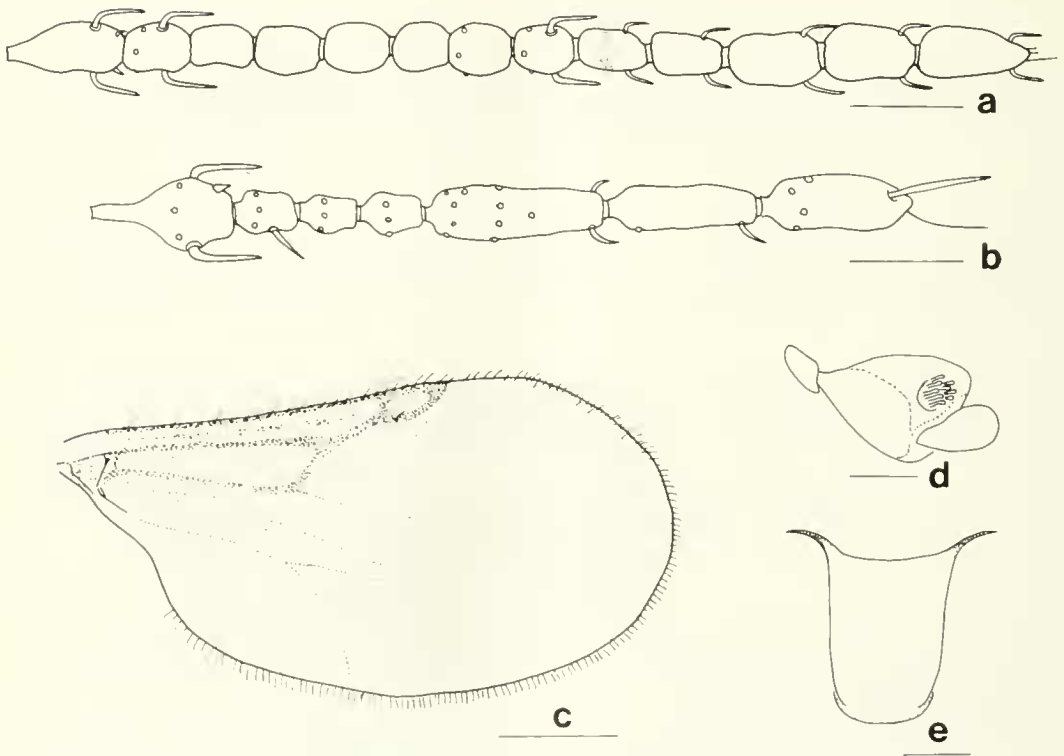


Fig. 1. *Nannohelea tamil*. a, female flagellum; b, male flagellum; c, female wing; d, male palpus; e, aedeagus. Scale bars = 0.03 mm (a-b), 0.1 mm (c), 0.01 mm (d-e).

- Aedeagus with short stout basal arms; flagellum with last flagellomere bearing 2 trichoid sensilla, antennal ratio 1.93  
 ..... *clastrieri*, Grogan and Wirth

***Nannohelea tamil* Grogan and Wirth,  
 NEW SPECIES  
 (Fig. 1)**

**Diagnosis.**— Differs from its congeners by the following combination of characters: very small size (female wing length 0.47 mm, male wing length 0.41 mm); wing with well developed anal lobe, vein R2+3 in nearly a straight line with and as long or longer than r-m crossvein, radial cell rounded; eyes separated; male aedeagus with long slender basal arms and rounded tip.

**Holotype female.**— **Head:** Dark brown. Eyes pubescent, narrowly separated. Antenna with dark brown pedicel; flagellum (Fig.

1a) light brown with darker brown bands on midportion of distal 5 flagellomeres, proximal 8 flagellomeres bearing a pair of stout subapical trichoid sensilla bent at 90° angle near base, flagellomere 1 with a pair of apical sensilla basiconica, distal 5 flagellomeres with subapical pair of sensilla basiconica that are also bent at base; lengths of flagellomeres in proportion of 21-11-12-11-11-11-11-12-13-13-18-18-20; antennal ratio 0.82. Clypeus with 2-3 pairs of submarginal setae. Palpus similar to that of male (Fig. 1c) but somewhat disoriented due to mounting; segment 2 very broad with large deep sensory pit bearing capitulate sensilla. Mandible very small with 4 small curved teeth.

**Thorax:** Dark brown. Scutum without anterior spine or humeral pits, covered with short fine pubescence and a few large setae; scutellum with 4 bristles; postscutellum

highly produced. Legs light brown; femora moderately slender, unarmed, stoutest on fore leg; tibiae slender, unarmed, stoutest on hind leg, hind tibia with comb of 6 setae and bifurcated or trifurcated spur; tarsi with apical spines on tarsomeres 1–3 of mid leg only, tarsomere 1 of hind leg with well developed palisade setae, tarsomeres 4 cylindrical, tarsomeres 5 slender and bearing small equal sized simple claws. Wing (Fig. 1c) infuscated dark brown, membrane covered with microtrichia, macrotrichia confined to anterior margin at tip and a few on radial sector; fringe moderately long, extending from base of costa to halfway up anal lobe; anal lobe well developed; a rounded radial cell present; r-m crossvein rather long and set at an oblique angle; vein R2+3 nearly in line with and as long as r-m crossvein; vein M1 straight, obsolete only near wing margin, M2 absent; cubitus forking at level of r-m crossvein, obsolete only near wing margin; anal veins absent; costal ratio 0.59; wing length 0.47 mm, breadth 0.27 mm. Halter light brown.

*Abdomen:* Brown. Two large spermathecae, partially collapsed, apparently ovoid with long slender necks, one of which is 0.06 mm in length including the neck.

Allotype male.—Smaller but similar to holotype female with the following notable differences: Antennal flagellum (Fig. 1b) reduced to only 7 flagellomeres; flagellomere 1 with only a single apical sensilla basiconica, flagellomere 2 with only a single straight trichoid sensilla, flagellomere 5 with a pair and flagellomere 6 with a single sensilla basiconica, flagellomere 7 with a single long straight sensilla trichodea; lengths of flagellomeres in proportion of 31-15-13-13-40-30-29; antennal ratio 1.38. Palpus (Fig. 1d) 3 segmented; segments in proportion of 12-33-19; palpal ratio 1.32. Mandible vestigial, without teeth. Wing length 0.41 mm, breadth 0.24 mm; costal ratio 0.59. Genitalia very small, distorted due to mounting; sternite 9 very short, caudal margin straight; tergite 9 apparently very short, extending

only  $\frac{1}{2}$  the length of gonocoxite. Gonocoxite straight, very short; gonostylus longer than gonocoxite, tapering slightly distally to a narrow rounded tip. Aedeagus highly distorted, a reconstruction of that of paratype shown in Fig. 1e; basal arm slender; distal portion with rounded tip. Parameres not discernible in holotype, but visible in paratype as a slender bridge that connects the bases of the gonocoxites.

Type material.—Holotype female, allotype male, one female and one male paratype labeled "SRI LANKA: Rat. Dist., Gilmale Lumber Mill, 7 VIII 1973, 115 feet, Ginter Ekis" (USNM).

Distribution.—Sri Lanka.

Etymology.—The specific epithet, *tamil*, is a reference to the small Dravidian people that inhabit the forests of Sri Lanka.

Remarks.—*Nannohelea fuscipennis* (Tokunaga) most closely resembles this new species but differs from it in having contiguous eyes, a wing with a smaller radial cell and the cubitus vein obsolete basally and on the distal  $\frac{2}{3}$ , a more slender 2nd palpal segment, male antenna with only distal 2 flagellomeres elongated and the aedeagus is pointed apically. *Nannohelea clastrieri* Grogan and Wirth, known only from a single male from Colombia, differs in having an aedeagus with short basal arms and the last flagellomere has 2 apical sensilla trichodea. *Nannohelea bourioni* (Clastrier) from France and Algeria differs by being a larger species (female wing length 0.68–0.74 mm; male wing length 0.50–0.55 mm), the wing of the female has a poorly developed anal lobe bearing capitate setae, and the male flagellum has 8 flagellomeres. The 2 species of *Nannohelea* that were recently described by Szadziewski (1988) from Eocene Baltic amber differ from all extant species in having a 4 segmented palpus.

#### ACKNOWLEDGMENTS

We are extremely grateful to Ethel L. Grogan for preparing the illustrations.

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